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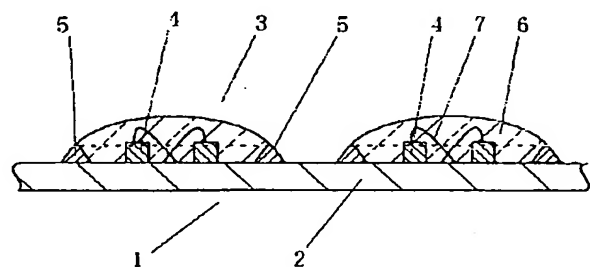
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(54)【発明の名称】 LED発光装置

(57)【要約】

【目的】 指向性の向上と輝度増加を図ったLED発光装置を提供する。

【構成】 表面が平坦な回路基板2の表面にLEDチップ4を配置するとともに、前記LEDチップ4を光透過性樹脂6でモールドしたLED発光装置1において、前記LEDチップ4を囲むように前記基板2の表面に前記光透過性樹脂6と接触して厚膜の反射被膜5を形成した。



PATENT ABSTRACTS OF JAPAN

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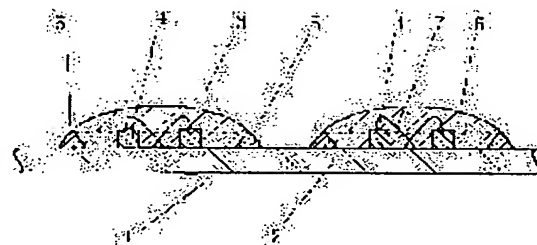
(72)Inventor : YAMAOKA TAKASHI

(54) LIGHT-EMITTING DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a light-emitting device for improving directivity and brightness.

SOLUTION: In a light-emitting device 1, where an LED chip 4 is arranged on the surface of a circuit substrate 2 whose surface is flat and at the same time, is molded by a light-transmitting resin 6, a thick-film reflection covering 5 is formed in contact with the light-transmitting resin 6 on the surface of the substrate 2, so that the LED chip 4 is surrounded.



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Request for ExaminationUnrequested**The number of claims** 4**Mode of Application**OL**Number of Pages**4(21)**Application number**Application for patent 2000-44813 (P2000-44813)(22)**Filing date**February 22, Heisei 12 (2000.2.22)(71)**Applicant****Identification Number**000001889**Name**SANYO Electric Co., Ltd.**Address**2-5-5, Keihan Hon-dori, Moriguchi-shi, Osaka(71)**Applicant****Identification Number**000214892**Name**Tottori SANYO Electric Co., Ltd.**Address**3-201, Minami-Yoshikata, Tottori-shi, Tottori-ken(72)**Inventor(s)****Name**Yamaoka ****Address**3-201, Minami-Yoshikata, Tottori-shi, Tottori-ken Inside of Tottori SANYO Electric Co., Ltd.(74)**Attorney****Identification Number**100111383**Patent Attorney****Name**Shibano right -- elegant**Theme code (reference)**

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F-term (reference)

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(57) Abstract**Objects of the Invention**The LED luminescent device which aimed at directive improvement and the increase in luminosity is provided.**Elements of the Invention**In the LED luminescent device 1 which carried out the mold of said LED tip 4 by the light transmittance state resin 6, while the surface had arranged LED tip 4 on the surface of the flat circuit board 2, said light transmittance state resin 6 was contacted, and

Claim(s)

Claim 4 The LED luminescent device according to claim 1, wherein said circuit board is board thickness thinner than height of said LED tip.

0001

0002

0003 However, when the circuit board is thick, the above hollows can be formed, but it is becoming difficult to form the above hollows as the thickness of the circuit board becomes thin. Even if the circuit board has sufficient thickness to form a hollow, forming a hollow in the circuit board or forming a circuit pattern in the hollow has the technical problem that complication of a manufacturing process, the increase in a process of operation, etc. are caused.

0004

Problem(s) to be Solved by the Invention This invention makes it a technical problem to provide the LED luminescent device which aimed at directive improvement and the increase in luminosity. Let it be a technical problem to attain simplification of the manufacturing process of an LED luminescent device.

0005

Means for Solving the Problem Like a statement to claim 1, while the surface arranges a LED tip on the surface of the flat circuit board, an LED luminescent device of this invention, In an LED luminescent device which carried out the mold of said LED tip by light transmittance state resin, said light transmittance state resin was contacted and a reflective tunic of a thick film was formed in the surface of said substrate so that said LED tip might be surrounded.

0006An LED luminescent device of this invention is characterized by the thing **having made thickness of said reflective tunic thicker than one third of height of said LED tip like** according to claim 2.

0007An LED luminescent device of this invention is characterized by the thing **that said circuit board is board thickness comparable as height of said LED tip like** according to claim 3.

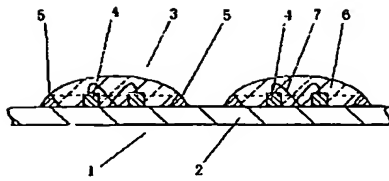
0008An LED luminescent device of this invention is characterized by the thing **that said circuit board is board thickness thinner than height of said LED tip like** according to claim 4.

Effect of the InventionAccording to this invention, assembly work nature can provide a good LED luminescent device as mentioned above with a thin shape which aimed at directive improvement and the increase in luminosity.

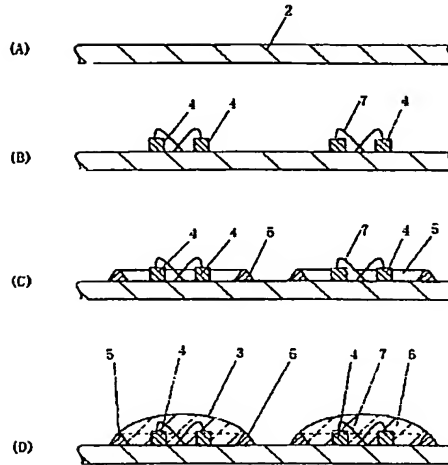
6 Light transmittance state resin

10063000

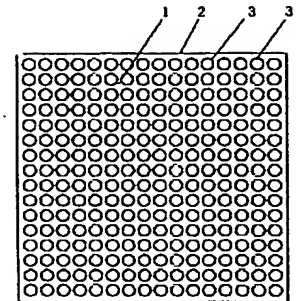
【図1】



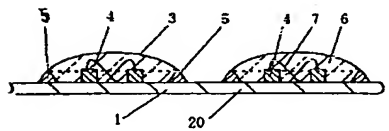
【図2】



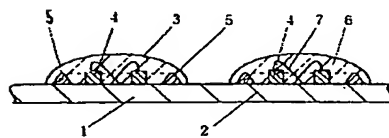
【図3】



【図4】



【図5】



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